

**REMARKS**

This paper is presented in response to the non-final official action of January 7, 2009, wherein (a) claims 1 and 11-14 were pending, and (b) claims 1 and 11-14 were rejected as obvious over Schmitt [sic - Stahl *et al.*] WO 00/48940 ("Stahl").

By the foregoing, claim 13 has been amended to correct a typographical error. Claims 1 and 11-14 remain pending and at issue.

**Claim Rejections – 35 U.S.C. 103**

Claims 1 and 11-14 were rejected under 35 U.S.C. 103 as assertedly obvious in view of International Publication No. WO 00/48940 to Stahl *et al.* ("Stahl"). The translation of Stahl is referenced in this response.

This rejection is respectfully traversed; reconsideration is requested.

The pending claims recite a method for the preparation of aqueous solutions of reactive chlorine compounds, comprising: (a) reacting chlorine dioxide with an aqueous solution of hydrogen peroxide or another hydroperoxide or peroxide at a pH value of  $\geq 6.5$ , to produce a gaseous free reactive chlorine compound and a dissolved reactive chlorine compound; (b) lowering the pH value to 3 to 6 by adding an acid; (c) expelling the gaseous free reactive chlorine compound with a cooled gas and collecting the dissolved chlorine compound in a basic solution with a pH value of >10; and (d) incubating the collected dissolved reactive chlorine compound with up to 100-fold excess of chlorite at a pH value of 6 to 8.

Stahl discloses a method for the production and isolation of peroxychloric acid and its derivatives comprising mixing chlorine dioxide with an aqueous solution of hydrogen peroxide at a pH value of 6.5 or above, lowering the pH below 6, and expelling the free acid or its derivative from the solution using an inert gas. Stahl further discloses that the acid can be "intercepted" in an aqueous solution of a base. See Stahl at page 20.

The action asserts that it would have been obvious to use a 100-fold excess of chlorite to push the reaction to completion. However, Stahl fails to disclose or suggest incubating a collected dissolved reactive chlorine compound with up to 100-

fold excess of chlorite at a pH value of 6 to 8, as recited in (d) of claim 1. Rather, Stahl discloses that the reaction of chlorine dioxide with hydrogen peroxide can be performed in the presence of chlorites such as sodium chlorite. See Stahl at pages 18-19. In other words, the optional addition of chlorites disclosed by Stahl would occur during (a) of pending claim 1, not (d).

A *prima facie* case of obviousness is rebuttable by evidence of unexpected results. See MPEP §716.02. Submitted concurrently with this response is a declaration under 37 C.F.R. §1.132 by Dr. Dirk Kaiser. As Dr. Kaiser attests, at the time the invention was made, a person having ordinary skill in the art would not expect the process in accordance with the claimed invention to produce compounds having a formula  $\text{NaCl}_2\text{O}_6$ . Rather, at the time the invention was made, the skilled artisan would have expected to obtain peroxochlorates (e.g.,  $\text{NaOOCIO}_2$ ), as disclosed by Stahl.

Surprisingly and beneficially, compounds having a formula  $\text{NaCl}_2\text{O}_6$  are obtained in accordance with the process recited in claim 1, as demonstrated by Fig. 6 and Example 1 of the present application. Dr. Kaiser's declaration provides comparative data in Fig. A of Appendix "A" demonstrating that compounds having a formula  $\text{NaCl}_2\text{O}_6$  are not obtained in accordance with the process disclosed by Stahl. Thus, as Dr. Kaiser attests, adding chlorite to the collected dissolved reactive chlorine compound (as in step (d) of claim 1) is responsible for the surprising and beneficial production of compounds having a formula  $\text{NaCl}_2\text{O}_6$ .

Moreover, as Dr. Kaiser attests, the skilled artisan would not have had an apparent reason to modify Stahl to arrive at the claimed invention. Stahl discloses in Example 6 (pages 40-41) that chlorine dioxide gas is reacted with an aqueous solution of hydrogen peroxide in the presence of sodium chlorite. The resulting solution is added to an aqueous solution of citric acid, from which peroxochloric acid is expelled with a strong gas current and "trapped" in washing bottles containing an aqueous solution of sodium hydroxide. See Stahl at pages 40-41. No further processing of the "trapped" peroxochloric acid solution is carried out. In particular, the solution is not incubated with up to 100-fold excess of chlorite at a pH value of 6 to 8. Thus, Stahl fails to disclose or suggest incubating a collected dissolved

reactive chlorine compound with up to 100-fold excess of chlorite at a pH value of 6 to 8, as claimed. Accordingly, one of ordinary skill would not have an apparent reason to modify Stahl to arrive at the invention as claimed.

For the foregoing reasons, the applicants respectfully submit that a *prima facie* case of obviousness cannot be maintained. Accordingly, the obviousness rejections of all pending claims have been overcome and should be withdrawn.

**CONCLUSION**

Based on the foregoing, reconsideration and withdrawal of all outstanding rejections, and allowance of claims 1 and 11-14 are solicited.

Should the examiner wish to discuss the foregoing or any matter of form in an effort to advance this application toward allowance he is urged to telephone the undersigned at the indicated number.

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Respectfully submitted,

By \_\_\_\_\_

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